

## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. 2002-CE-18-AD; Amendment 39-13138; AD 2003-09-09]**

**RIN 2120-AA64**

### **Airworthiness Directives; Cessna Aircraft Company Models 441 and F406 Airplanes**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule.

---

**SUMMARY:** This amendment supersedes Airworthiness Directive (AD) 2002-09-13, which currently requires a one-time inspection of the fuel boost pump wiring inside and outside the boost pump reservoir and repair or replacement of the wiring as necessary on certain Cessna Aircraft Company (Cessna) Model 441 airplanes. AD 2002-09-13 resulted from several reports of chafing and/or arcing of the fuel boost pump wiring inside and outside the fuel pump reservoir. This AD retains the actions required in AD 2002-09-13, makes the one-time inspection repetitive, requires the inspection and possible replacement of the wire harness, lead wires and fuel boost pump on Model F406 airplanes, and requires eventual installation of an improved design wire harness and fuel boost pump as terminating action for the repetitive inspections. The actions specified by this AD are intended to detect, correct, and prevent chafing and/or arcing fuel boost pump wiring, which could result in arcing within the wing fuel storage system. Such a condition could lead to ignition of explosive vapor within the fuel storage system.

**DATES:** This AD becomes effective on June 24, 2003.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of June 24, 2003.

**ADDRESSES:** You may get the service information referenced in this AD from Cessna Aircraft Company, Product Support, P.O. Box 7706, Wichita, Kansas 67277; telephone: (316) 517-5800; facsimile: (316) 942-9006. You may view this information at the Federal Aviation Administration (FAA), Central Region, Office of the Regional Counsel, Attention: Rules Docket No. 2002-CE-18-AD, 901 Locust, Room 506, Kansas City, Missouri 64106; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Robert Adamson, Aerospace Engineer, FAA, Wichita Aircraft Certification Office, 1801 Airport Road, Room 100, Wichita, Kansas 67209; telephone: 316-946-4145; facsimile: 316-946-4107.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

*What events have caused this AD?* Reports of chafing and/or arcing of the fuel boost pump wiring inside the fuel pump reservoir that supplies fuel to each engine on Cessna Model 441 airplanes caused us to issue AD 2002-09-13, Amendment 39-12746 (67 FR 31117, May 9, 2002). AD 2002-09-13 requires you to: (1) do a one-time inspection of the electrical wiring going to the fuel boost pump reservoir and the boost pump wiring inside the reservoir for chafing or damage, and (2) repair or replace the wiring as necessary.

These actions are required in accordance with Cessna Conquest Service Bulletin No.: CQB02-1R1, Revision 1, dated April 22, 2002.

*What has happened since AD 2002-09-13 to initiate this action?* Further analysis of this situation reveals that:

- The actions required by AD 2002-09-13 should also apply to Model F406 airplanes;
- The inspection should be repetitive; and
- Improved design wire harnesses and fuel boost pumps should eventually be installed as terminating action for the repetitive inspections.

*Has FAA taken any action to this point?* We issued a proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that would apply to certain Cessna Models 441 and F406 airplanes. This proposal was published in the Federal Register as a notice of proposed rulemaking (NPRM) on October 21, 2002 (67 FR 64568). The NPRM proposed to supersede AD 2002-09-13 with a new AD that would require repetitive inspections of the Models 441 and F406 airplanes fuel boost pump wiring inside and outside the boost pump reservoir for chafing or damage and replacement of the wiring and fuel boost pump, as necessary, and require eventual installation of an improved design wire harness and fuel boost pump as terminating action for the repetitive inspections.

*How will this action relate to the FAA's aging commuter-class aircraft policy?* The FAA's aging commuter aircraft policy briefly states that when a modification exists that could eliminate or reduce the number of required critical inspections, the modification should be incorporated. This policy is based on the FAA's determination that reliance on critical repetitive inspections on airplanes utilized in commuter service carries an unnecessary safety risk when a design change exists that could eliminate or, in certain instances, reduce the number of those critical inspections. In determining what inspections are critical, the FAA considers (1) the safety consequences of the airplane if the known problem is not detected by the inspection; (2) the reliability of the inspection.

*What is the potential impact if FAA took no action?* This condition, if not detected and corrected, could result in arcing within the wing fuel storage system. Such a condition could lead to ignition of explosive vapor within the fuel storage system.

*Was the public invited to comment?* The FAA encouraged interested persons to participate in the making of this amendment. The following presents the comments received on the proposal and FAA's response to each comment:

### **Comment Issue No. 1: Remove Warnings Following Compliance to the Proposed AD**

*What is the commenter's concern?* The commenter, for clarity and completeness, requests that the AD call out removing the warning placards after compliance with Cessna Conquest Service Bulletin No.: CQB02-1, Revision 2, dated October 7, 2002.

*What is FAA's response to the concern?* We concur with the commenter and for clarity and completeness will change the final rule AD action to incorporate this change.

### **Comment Issue No. 2: Validity of the 200-Hour Time-in-Service (TIS) Recurrent Inspection Requirement**

*What is the commenter's concern?* The commenter states that the 200-hour TIS recurrent inspection is not necessary because the commenter's specific aircraft is 24 years old and has more than 7,900 hours TIS and inspection finds only minor chafing of one wire. Further, the commenter states that the 200-hour TIS recurrent inspection increases the likelihood of creating fuel leaks because of the constant reopening and resealing of the fuel boost pump panels. The commenter disagrees with the 200-hour TIS recurrent inspection requirement. Because the commenter did not request an alternative time, we infer that the commenter wants the repetitive inspection deleted from the AD.

*What is FAA's response to the concern?* We do not concur. Initial investigation revealed harnesses and fuel boost pump leads with virtually no chafing, some with minor chafing, and several with excessive chafing that appeared to have been arcing. Additionally, all of the above conditions were found on aircraft with relatively low TIS to high TIS. The 200-hour TIS recurrent inspection is necessary to assure continued airworthiness of repaired wire harnesses.

We are not changing the final rule AD action as a result of this comment.

### **Comment Issue No. 3: Allow the Aircraft To Be Operated With Greater Than 80 Pounds or 12 Gallons of Fuel in Either Wing Tank Instead of Replacing the Wire Harnesses and Fuel Boost Pumps**

*What is the commenter's concern?* The commenter states that the wire harness is submerged in fuel when 80 pounds or 12 gallons of fuel remain in each wing tank. The commenter requests that the proposed AD allow the aircraft to be flown with greater than 80 pounds or 12 gallons of fuel remaining in either wing tank instead of replacing the wire harnesses and fuel boost pumps that exhibit chafing of the wire harness.

*What is FAA's response to the concern?* We do not concur. There are two wire harnesses in each wing tank, each with the potential for chafing and subsequent arcing if not corrected. The potential for arcing within the fuel tank continues to exist until replacing or repairing both sources of possible arcing. The request to allow operation with 80 pounds of fuel remaining in either tank only assures the fuel boost pump lead wires to remain covered with fuel. Engineering evaluation has determined that safe operation without repaired or replaced wire harnesses requires approximately 300 pounds to assure both wire harnesses are submerged in fuel.

We are not changing the final rule AD action as a result of this comment.

### **Comment Issue No. 4: Replace the Fuel Boost Pumps**

*What is the commenter's concern?* The commenter states that the fuel boost pump wire harness is the reason for the AD action and the fuel boost pumps remain in an acceptable operating condition. The commenter disagrees with replacing the fuel boost pumps. The commenter states that the problem is with the fuel boost pump wire harnesses and replacement of the fuel pumps is an undue and unnecessary burden on the operators.

*What is FAA's response to the concern?* We do not concur. Chafing has been found to occur on both the fuel boost pump lead wires and the wire harness extending from the fuel boost pump housing to wing structure on several aircraft with varying times-in-service.

We are not changing the final rule AD action as a result of this comment.

#### **Comment Issue No. 5: Correct Cost Estimate for Replacing the Wire Harnesses and Fuel Boost Pumps**

*What is the commenter's concern?* The commenter disagrees with the estimated cost of replacing the wire harnesses and fuel boost pumps. The commenter justifies disagreement with cost data from one service center.

*What is FAA's response to the concern?* We do not concur. The cost estimate associated with the cost impact with the proposed AD has been coordinated with Cessna, and found to be valid.

We are not changing the final rule AD action as a result of this comment.

#### **Comment Issue No. 6: Adequacy of the 1,200-Hour TIS Phase 11 Inspection**

*What is the commenter's concern?* The commenter requests that, once the wire harnesses have been replaced and the fuel boost pumps have been replaced or repaired, the inspection criteria on the 1,200-hour TIS Phase 11 inspection include specific instructions to inspect the wire harnesses and fuel boost pump leads for chafing and security. The commenter further states that including specific instructions to inspect the wire harnesses and fuel boost pump leads would assure continued airworthiness of the harnesses and boost pump leads.

*What is FAA's response to the concern?* We do not concur. The Model 441 Maintenance Manual was revised on July 1, 2002, with specific instructions to visually inspect all wire bundles/electrical components in the fuel storage area. Cessna and FAA agreed that inspection of these areas would occur every 600 hours TIS or 24 calendar months, whichever occurs first, to coincide with the general electrical wiring and component inspection interval. The FAA will monitor the service history and take further rulemaking action if it shows that normal maintenance practices are not eliminating the problem.

We are not changing the final rule AD action as a result of this comment.

#### **FAA's Determination**

*What is FAA's final determination on this issue?* We carefully reviewed all available information related to the subject presented above and determined that air safety and the public interest require the adoption of the rule as proposed except for the changes discussed above and minor editorial questions. We have determined that these changes and minor corrections:

- Provide the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

#### **Cost Impact**

*How many airplanes does this AD impact?* We estimate that this AD affects 370 airplanes in the U.S. registry.

*What is the cost impact of this AD on owners/operators of the affected airplanes?* We estimate the following costs to accomplish the inspection:

<b>Labor cost</b>	<b>Parts cost</b>	<b>Total cost per airplane</b>	<b>Total cost on U.S. operators</b>
8 workhours x \$60 per hour = \$480.	None	\$480	\$480 x 370 = \$177,600

For Model 441 airplanes, we estimate the following costs to accomplish the replacements:

<b>Labor cost</b>	<b>Parts cost</b>	<b>Total cost per airplane</b>
8 workhours x \$60 per hour = \$480	\$13,101	\$480 + \$13,101 = \$13,581

For Model F406 airplanes, we estimate the following costs to accomplish the replacements:

<b>Labor cost</b>	<b>Parts cost</b>	<b>Total cost per airplane</b>
8 workhours x \$60 per hour = \$480	\$7,558	\$480 + \$7,558 = \$8,038

### **Regulatory Impact**

*Does this AD impact various entities?* The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

*Does this AD involve a significant rule or regulatory action?* For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A copy of the final evaluation prepared for this action is contained in the Rules Docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption ADDRESSES.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

### **PART 39—AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. FAA amends § 39.13 by adding a new AD to read as follows:

# AIRWORTHINESS DIRECTIVE

Aircraft Certification Service  
Washington, DC



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

*We post ADs on the internet at "www.faa.gov"*

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

**2003-09-09 Cessna Aircraft Company:** Amendment 39-13138; Docket No. 2002-CE-18-AD;  
Supersedes AD 2002-09-13, Amendment 39-12746.

(a) *What airplanes are affected by this AD?* This AD affects the following airplane models and serial numbers that are certificated in any category:

Model	Serial numbers
441	0001 through 0362 and 698.
F406	0001 through 0089.

(b) *Who must comply with this AD?* Anyone who wishes to operate any of the airplanes identified in paragraph (a) of this AD must comply with this AD.

(c) *What problem does this AD address?* The actions specified by this AD are intended to detect, correct, and prevent chafing and/or arcing fuel boost pump wiring, which could result in arcing within the wing fuel system. Such a condition could lead to ignition of explosive vapor within the fuel storage system.

(d) *What actions must I accomplish to address this problem?* To address this problem, you must accomplish the following:

Actions	Compliance	Procedures
(1) For Model 441 airplanes: Inspect the part number (P/N) 5718106-1 wire harness and fuel boost pump lead wires for chafing or damage.	Initially at whichever occurs first, unless already accomplished: Within the next 25 hours time-in-service (TIS) or 60 days after May 31, 2002 (the effective date of AD 2002-09-13): Repetitively thereafter at intervals not to exceed 200 hours TIS.	In accordance with Cessna Conquest Service Bulletin No.: CQB02-1, Revision 2, dated October 7, 2002.
(2) For Model F406 airplanes: Inspect the P/N 5718106-4 wire harness and fuel boost pump lead wires for chafing or damage.	Initially at whichever occurs first, unless already accomplished: Within the next 25 hours TIS after June 24, 2003 (the effective date of this AD) or 60 days after June 24, 2003 (the effective date of this AD): Repetitively thereafter at intervals not to exceed 200 hours TIS.	In accordance with Reims/Cessna Caravan Service Bulletin No.: CAB02-8, dated June 3, 2002.

<p>(3) If chafing or damage is found during any inspection required in paragraph (d)(1) or (d)(2) of this AD:</p> <p>(i) For the Model 441 airplanes, replace the wire harnesses, repair fuel boost pump lead wires, or replace the fuel boost pump, as applicable.</p> <p>(ii) For the Model F406 airplanes, repair or replace the wire harnesses or lead wires, or fuel boost pump, as applicable.</p>	<p>Before further flight after any inspection required in paragraphs (d)(1) and (d)(2) of this AD in which damage is found. If improved design wire harnesses and fuel boost pumps are not installed, continue to inspect as specified in paragraph (d)(1) or (d)(2) of this AD until these improved design parts are installed.</p>	<p>For the Model 441 airplanes: In accordance with Cessna Conquest Service Bulletin No.: CQB02-1, Revision 2, dated October 7, 2002. For the Model F406 airplanes: In accordance with Reims/Cessna Caravan Service Bulletin No.: CAB02-8, dated June 3, 2002.</p>
<p>(4) Perform the following installations:</p> <p>(i) For the Model 441 airplanes: Install improved design fuel boost pump (P/N 1C12- 17 or FAA-approved equivalent P/N) and improved design wire harness (P/N 5718106-6 or FAA-approved equivalent P/N). Installing both improved part numbers in each wing tank terminates the repetitive inspection requirements of paragraph (d)(1) of this AD.</p> <p>(ii) For the Model F406 airplanes: Install improved design fuel boost pump (P/N 1C12- 17 or FAA-approved equivalent P/N) and improved design wire harness (P/N 406 28 01 or FAA-approved equivalent P/N). Installing both improved part numbers in each wing tank terminates the repetitive inspection requirements of paragraph (d)(2) of this AD.</p>	<p>Within the next 400 hours TIS after June 24, 2003 (the effective date of this AD), unless already accomplished.</p>	<p>For the Model 441 airplanes: In accordance with Cessna Conquest Service Bulletin No.: CQB02-1, Revision 2, dated October 7, 2002. For the Model F406 airplanes: In accordance with Reims/Cessna Caravan Service Bulletin No.: CAB02-8, dated June 3, 2002.</p>
<p>(5) Remove the following warnings for the Model 441 airplanes after compliance with Cessna Conquest Service Bulletin No.: CQB02-1, Revision 2, dated October 7, 2002:</p> <p>(i) “PRIOR TO THE INITIAL INSPECTION: THE AIRPLANE SHOULD NOT BE OPERATED WITH LESS THAN 300 POUNDS OF FUEL IN EACH WING.”</p> <p>(ii) “AFTER THE INITIAL INSPECTION: THE AIRPLANE SHOULD NOT BE OPERATED WHENEVER THE LEFT OR RIGHT LOW FUEL ANNUNCIATOR IS ILLUMINATED.”</p>	<p>As of June 24, 2003 (the effective date of this AD).</p>	<p>Not applicable.</p>

---

(6) Only install improved design wire harnesses and fuel boost pumps as specified in paragraphs (d)(4)(i) and (d)(4)(ii) of this AD.	As of June 24, 2003 (the effective date of this AD).	Not applicable.
--	--	-----------------

---

(e) *Can I comply with this AD in any other way?*

(1) You may use an alternative method of compliance or adjust the compliance time if:

(i) Your alternative method of compliance provides an equivalent level of safety; and

(ii) The Manager, Wichita Aircraft Certification Office (ACO), approves your alternative.

Submit your request through an FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Wichita ACO.

(2) Alternative methods of compliance approved in accordance with AD 2002-09-13, which is superseded by this AD, are approved as alternative methods of compliance for all inspection requirements of this AD. Regardless, you still must comply with the replacement requirements of this AD.

**Note:** This AD applies to each airplane identified in paragraph (a) of this AD, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (e) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if you have not eliminated the unsafe condition, specific actions you propose to address it.

(f) *Where can I get information about any already-approved alternative methods of compliance?*

Contact Robert Adamson, Aerospace Engineer, FAA, Wichita Aircraft Certification Office, 1801 Airport Road, Room 100, Wichita, Kansas 67209; telephone: 316-946-4145; facsimile: 316-946-4107.

(g) *What if I need to fly the airplane to another location to comply with this AD?* The FAA can issue a special flight permit under §§ 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate your airplane to a location where you can accomplish the requirements of this AD.

(h) *Are any service bulletins incorporated into this AD by reference?* Actions required by this AD must be done in accordance with Cessna Conquest Service Bulletin No.: CQB02-1, Revision 2, dated October 7, 2002; and Reims/Cessna Caravan Service Bulletin No.: CAB02-8, dated June 3, 2002. The Director of the Federal Register approved this incorporation by reference under 5 U.S.C. 552(a) and 1 CFR part 51. You may get copies from Cessna Aircraft Company, Product Support, P.O. Box 7706, Wichita, Kansas 67277; telephone: (316) 517-5800; facsimile: (316) 942-9006. You may view copies at the FAA, Central Region, Office of the Regional Counsel, 901 Locust, Room 506, Kansas City, Missouri, or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

(i) *Does this AD action affect any existing AD actions?* This amendment supersedes AD 2002-09-13, Amendment 39-12746.

(j) *When does this amendment become effective?* This amendment becomes effective on June 24, 2003.

Issued in Kansas City, Missouri, on April 22, 2003.

Dorenda D. Baker,

Acting Manager, Small Airplane Directorate, Aircraft Certification Service.

[FR Doc. 03-10509 Filed 4-30-03; 8:45 am]

BILLING CODE 4910-13-P